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09/894,136

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EXAMINER

HABTE, ZEWDU

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/894,136

Applicant(s)

RANKIN ET AL.

Examiner

Zewdu Habte

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16 and 25 is/are allowed.
- 6) ☒ Claim(s) 1-12 and 17-24 is/are rejected.
- 7) ☒ Claim(s) 6 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 5 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "different " in claim 5 is a relative term, which renders the claim indefinite. The term "different type of resource sharing paradigm" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Different from what other type of paradigm, is not defined.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-4, 7- 9, 12, 17 and 21 are rejected under 35 U.S.C. 102(a) as being anticipated by Walsh et al. (5329521).

As to claim 1 Walsh discloses an apparatus (Fig. 1) for transferring data packets comprising: a first node (Fig. 1 @14 &18 are considered a single node) including a first

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end of a first channel (Fig. 4 @ 32) and a first end of a second channel (Fig. 4 @ 34); a second node (Fig. 1 @ 16 & 20 are considered a single node) including a second end of a first channel (Fig. 4 @ 32, since the two nodes are the same equipment at a different location) and a second end of a second channel (Fig. 4 @ 34); a physical connection joining said first node and said second node through which signals of both said first channel and said second channel are carried (Fig. 1 @ 10 & 12, physical connections); a first controller (Fig. 4 @ 36, LAN controller) connected to said first end of said first channel (Fig. 4 shows LAN controller 36 connected to first end of 32) and a second controller (Fig. 4 @ 38, LAN controller) connected to a first end of said second channel (Fig. 4 shows LAN controller 38 connected to first the end of 34), said first controller and said second controller being in communication (Fig. 2 shows connection between controllers) and controlling interleaving of data through said physical connection (col. 3, lines 43-49, both controllers interleave data through link 10 and 12).

As to claim 2 Walsh discloses a third controller (Fig. 4 @ 36, LAN controller; since the two nodes are the same equipment at a different location, the first node Fig. 1 @ 14 & 18, is the same as the second node Fig. 1 @ 16 & 20) connected to the second end of the first channel (Fig. 4, LAN controller 36 connected to the first end of 32) and a fourth controller (Fig. 4 @ 38, LAN controller) connected to the second end of the second channel (Fig. 4, LAN controller 38 connected to the first end of 34), said third and fourth controllers being in communication with each other (Fig. 2 shows connection between controllers).

As to claim 3 Walsh discloses apparatus according to claim 2, said first controller and said third controller being in communication and said second controller and said fourth controller being in communication (Fig. 1 and Fig. 2 show controllers from each node connected through links 10 and 12; for example, controller 24 from the first node connects to controller 24 from the second node through link 10, and controller 26 from the first node connects to controller 26 from the second node through link 12; these show controllers being in communication).

As to claim 4 Walsh discloses apparatus according to claim 1, said second node further comprising a queue for receiving data packets from said second end of said first channel and said second end of said second channel (Fig. 3 shows second end of first channel 32 and second end of second channel 34 are also queues for receiving data) and for delivering said packets to a processor bus (Fig. 3, queue 32 and queue 34 are delivering data through a bus connected to node controller 28; since the node controller controls the data delivered to the node using a processor, the bus that connects the queue and the controller are a processor bus).

As to claim 7, Walsh discloses a method for transmitting data, comprising: connecting a first node (Fig. 1 @14 &18 are considered a single node) and a second node (Fig. 1 @ 16 & 20 are considered a single node) with a physical connection (Fig. 1@ 10 &12, physical connections between nodes); connecting one end of said physical connection to one end of at least two channels (Fig. 3, channel 32 and channel 34 at the first node are connected by one end of the physical connections) and connecting the opposite end of said physical connection to the other end of said at least two channels

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(Fig. 3, channel 32 and channel 34 at the second node are connected at the other end of the physical connections); interleaving flits from said two channels along the physical connection (Fig. 3 shows both channel 32 and channel 34 interleaving data access along the physical connection; the data or Ethernet frames are sent on a bus as a bit stream or flits).

As to claims 8 and 9 Walsh discloses the method according to claim 7, further comprising reforming said flits into packets at the other end of said channels (implicitly taught because Ethernet frames are sent on a bus as a bit stream that re-form as a packet in queues, before transferring to a processor bus).

As to claim 12 Walsh discloses the method according to claim 7, wherein more than two channels are connected to said physical connection (Fig. 3, physical connection 10 supports channels 32 and 42, and physical connection 12 supports channels 34 and 44).

As to claim 17, Walsh discloses an apparatus for transferring data packets between nodes of a switched fabric architecture (Fig. 1), comprising: a first node (Fig. 1 @14 &18 are considered a single node) including a first end of a first channel (Fig. 4 @ 32) and a first end of a second channel (Fig. 4 @ 34); a second node (Fig. 1 @ 16 & 20 are considered a single node) including a second end of a first channel (Fig. 4 @ 32, since the two nodes are the same equipment at a different location) and a second end of a second channel (Fig. 4 @ 34); a physical connection joining said first node and said second node through which signals of both said first channel and said second channel are carried (Fig. 1 @ 10 &12, physical connections); a first controller (Fig. 4 @ 36, LAN

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controller) connected to said first end of said first channel (Fig. 4 shows LAN controller 36 connected to the first end of 32) and a second controller (Fig. 4 @ 38, LAN controller) connected to a first end of said second channel (Fig. 4 shows LAN controller 38 connected to first end of 34), said first controller and said second controller being in communication (Fig. 2 shows the connection between controllers) and controlling interleaving of data through said physical connection (col. 3, lines 43-49, both controllers interleave data through link 10 and 12).

As to claim 21, Walsh discloses a method for transferring data between nodes of a switched fabric architecture (Fig. 1), comprising: connecting a first node (Fig. 1 @ 14 & 18 are considered a single node) and a second node (Fig. 1 @ 16 & 20 are considered a single node) with a physical connection (Fig. 1 @ 10 & 12, physical connections between nodes); connecting one end of said physical connection to one end of at least two channels (Fig. 3, channel 32 and channel 34 at the first node are connected by one end of the physical connections) and connecting the opposite end of said physical connection to the other end of said at least two channels (Fig. 3, channel 32 and channel 34 at second node are connected at the other end of the physical connections); interleaving flits from said two channels along the physical connection (Fig. 3 shows both channel 32 and channel 34 interleaving data access along the physical connection; the data or Ethernet frames are sent on a bus as a bit stream or flits).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18-20, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walsh in view of Parthasarathy et al. (US 6831916 B1).

As to claims 18 and 22, Walsh does not disclose the architecture is InfiniBand architecture, but Parthasarathy discloses an adapter with InfiniBand architecture (col. 3, line 31). It would have been obvious to a person of ordinary skill at the time of the invention to combine Walsh with Parthasarathy of switch fabric architecture since doing so would prevent packet contention by virtual output queuing schemes.

As to claims 19 and 23, Walsh does not disclose the architecture is NGIO architecture, but Parthasarathy discloses an adapter with NGIO architecture (col. 3, line 31). It would have been obvious to a person of ordinary skill at the time of the invention to combine Walsh with Parthasarathy of switch fabric architecture since doing so would prevent packet contention by virtual output queuing schemes targeted in standard high-volume servers.

As to claims 20 and 24, Walsh does not disclose the architecture is FIO architecture, but Parthasarathy discloses an adapter with FIO architecture (col. 3, line 31). It would have been obvious to a person of ordinary skill at the time of the invention

to combine Walsh with Parthasarathy of switch fabric architecture since doing so would prevent packet contention by virtual output queuing schemes targeted in high-end platforms.

Allowable Subject Matter

7. Claims 13-16, and 25 allowed.
8. Claims 6 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zewdu Habte whose telephone number is 571-272-3115. The examiner can normally be reached on 8:30-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen, can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Zewdu Habte (Zed)
Examiner
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March 7, 2005



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